INVESTIGATOR'S ANNUAL REPORT

National Park Service

All or some of the information provided may be available to the public

Reporting Year: 2004	**Park:** Shenandoah NP
Principal Investigator: Dr David Wenos	**Office Phone:** 540-568-3928 **Email:** wenosdl@jmu.edu
Address: MSC 4301 Health & Human Service Bldg. Harrisonburg, VA 22807 US	**Office Fax:** 540-568-3336

Additional investigators or key field assistants (first name, last name, office phone, office email):

Name: Dr. Mike Deaton **Phone:** 540-568-2725 **Email:** deatonml@jmu.edu

Permit#:
SHEN-2002-SCI-0023

Park-assigned Study Id. #:
SHEN-00271

Project Title:
Field Measurements of Metabolic Indices During Hiking

Permit Start Date: Mar 15, 2002	**Permit Expiration Date** May 31, 2008
Study Start Date: Mar 15, 2002	**Study End Date** May 31, 2008

Study Status:
Continuing

Activity Type:
Research

Subject/Discipline:
Other

Objectives:

I plan on hiking this section of the AT twice in order to compare metabolic differences when hiking with and without trekking poles. At the same time time, I will be using the newest generation of triaxial accelerometers that allows long-term measurement of physical activity. The accelerometer records activity counts in three planes of movement, which are used as the basis to estimate energy expenditure. Several outcomes will result from this project. First, it provides a way to map the AT in terms of energy expended and thus lends additional information for planning in terms of food (calories necessary) and overall effort. Second, it provides an extended analysis of the overall effect trekking poles have in terms of energy expenditure during backpacking. Third, it will provide a field comparison of measuring metabolism directly or indirectly via the Cosmed K4b2 metabolic unit versus the RT3 Triaxial Accelerometer. The combination of these instruments allow for more realistic field measurements of energy expenditure. A unique feature of the Cosmed K4b2 is the inclusion of a 12 channel GPS unit that integrates speed, distance, and altitude with the metabolic data.

Other extensions for this project are being considered as well. In my conversations with the head ranger of Geographic Information Systems for the Shenandoah National Park, he expressed interest in developing a grading system for all of the trails in the park based on measures of energy expenditure. In an effort to assist park visitors with accurate hiking information, a rating scale can advise hikers of the actual difficulty of trails they choose to hike. Obviously, this aspect of the study would be a long-term project.

The results of this study will be disseminated through subsequent publications and presentations.

Findings and Status:
No activity was conducted this report year.

For this study, were one or more specimens collected and removed from the park but not destroyed during analyses?
No

Funding provided this reporting year by NPS: 0	**Funding provided this reporting year by other sources:** 0

Fill out the following ONLY IF the National Park Service supported this project in this reporting year by providing money to a university or college	
Full name of college or university:	**Annual funding provided by NPS to university or college this reporting year:**
n/a	0